

We will call, in round numbers, 21,000,000 cubic feet the available amount of drainage from one square mile of surface.

We have estimated in the earlier part of this report that 1,140,000,000 cubic feet is the annual *due supply of*

water required. Then $\left\{ \frac{1,140,000,000}{21,000,000} = \right\} 54 \text{ 1-3 miles}$

of surface will be required to furnish this amount.

We will now give our reasons for assuming one foot as the available depth of rain that can be collected into reservoirs; and, secondly, show why we have allowed an average annual loss of one fourth of the whole amount thus collected:

1st. The depth of rain that can be made available to our purposes. This brings into consideration the total depth of rain that falls annually upon Parr's ridge, and the various causes that dispose of the whole of it.

The principal of these causes, as regards the object we have in view, are: evaporation, the drainage of the streams feeding our reservoirs, and springs issuing out of the earth's surface below the reservoir level.

Take the whole surface of the globe and one year with another, and the rain and evaporation must be equal; but it by no means follows that the downfall water and evaporation on any given portion of that surface are equal—for, as on Parr's ridge, there is generally on land an excess of rain beyond the evaporation, which passes off by the streams and springs to lower levels, from whence that, or an equal quantity of water, will be evaporated, in addition to the rain of those lower levels.

The well ascertained fact, that the evaporation from water is greater than that from land, and that the average of rain is less than the evaporation from water, will explain the manner in which all this can take place.

The evaporation from land is subject to great irregularity—some earths are more retentive of rain than others, and hold it nearer the surface, to be acted upon by the sun: other earths drink in the water, and allow it to filtrate to the lower levels, thence to issue in springs, while in some places you will find a hard surface, over which water easily passes and readily runs off into the